NOTIFICATION of SYMPOSIUM and CALL for PAPERS

42nd LEEDS-LYON SYMPOSIUM ON TRIBOLOGY

Surfaces and Interfaces: Mysteries at Different Scales

Organized by LaMCoS, INSA Lyon, Villeurbanne (France)

To be held in Lyon, from Monday September 7 to Wednesday September 9, 2015

Multi-scale features in tribology are born from the need to take into account the many complex processes at work in a real system, especially at the interface of the solid bodies' surfaces. A succession of phenomena with different orders of magnitude in time and space must be identified and thus properly linked each other. The method may include both theoretical and empirical knowledge at widely differing scales.

Tribological phenomena at surfaces and interfaces are multi-scale by nature. They still reveal 'mysteries' which remain important scientific barriers to break. It is only natural that modeling techniques including time and space scales dependencies and/or experimental tools handling proper time and space dimensions can be fruitfully applied. Thus tribologists wishing to attend the 42nd Symposium are invited to present their work in the various aspects of surfaces and interfaces, ranging from atomistic theories to practical engineering experiments. In doing so, the validity of the models and the relevance of the results can be better established in advanced studies of lubrication, friction and wear.

Conference Topics

The program committee cordially invites research ideas to be presented according (but not limited to) the following suggested range of subjects:

Track 1. Scale-related analysis of full-film lubrication

Due to environmental and economic constraints, lubricant films are still becoming thinner, thus bringing new experimental, numerical and scientific challenges. This track will focus on the interactions between phenomena occurring from the micro/nano to the macro scale in lubrication.

Track 2. Across the scales in the boundary lubrication regime

Boundary lubrication is a topic with immense issues. This theme will be devoted to the lubricant-surface interactions and their practical consequences: change in friction, additives performance, rolling contact fatigue, wear, adhesion, etc.

Track 3. Dry friction and wear: from mechanics to physical-chemistry

Dry contacts are sensitive to many environmental conditions. This track will aim to exchange on novel ideas for the understanding of the links between mechanics and physical chemistry from the experimental, numerical or conceptual points of view.

Track 4. Biological response in tribological environments

The response of biological interfaces to tribological conditions is a major concern in bio-engineering. The track may include molecular self-assembly in biological lubrication, tissue remodeling under tribological stress, tissue reaction to surgical tools, smart implants, virtual surgery, etc.

Track 5. Fifty years of Greenwood-Williamson

The GW paper inaugurated the study of the quantitative role of surface roughness in tribology. Contributions related to this are invited, particularly those relating to the wear process, or where the direct value to tribologists is clear. Developments of the GW theory, and its alternatives, will be positively considered.

Those wishing to attend the 42nd Leeds-Lyon Symposium on Tribology are encouraged to contact us at an early stage in the process. Offers of papers, which should include the proposed title, name of authors and a synopsis (not exceeding one page), should be submitted by means of the website http://leeds-lyon.sciencesconf.org before Friday February 27, 2015 at the latest.

Benyebka BOU-SAID & Philippe VERGNE, on behalf the organizing committee

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